

the handle up or down the hopper E can be raised or lowered through the medium of the shaft 19, arms 20, and links 21, and locked in either position by the engagement of a bolt, 24, with the recesses in the segment. A weighted lever, 25, is attached to the shaft 19 at the opposite end to that which carries the operating-lever 22. This weighted lever 25 counterbalances the hopper E.

The object of raising the hopper is to permit the hoops to be placed on or drawn off of the cones K K, on which the hopper rests when down.

The operation of the machine is as follows:

The hoops are first placed on the cones K in front of the fingers s, the swinging frame G being in position shown in Fig. 8—that is to say, in its outer position. The two heads of the barrel to be formed are placed in the flanged disks c c, and the frame G is then pushed over in the direction of the arrow, Fig. 8, until it is arrested by the stops, the heads being then in line with the disks J J'. By turning the screw-bolt e, the heads of the barrel are forced against the disks, and are held by the small pins or projections on the faces of the latter, the frame G being then withdrawn. The handle 22 is then operated to permit the descent of the hopper E, which rests on the cones K K. The hopper is filled with staves, and, the machine being started, the disks J J' are turned to the extent of one stave, or one-sixteenth of a revolution, on each revolution of the driving-shaft. The staves rest directly one upon another, the lowest bearing upon the disks J J' between two of the fins a², so that as the disk is rotated stave after stave drops onto the disks and is carried around under the flanges 26 of the cones K, which prevent any of the staves from falling out. (See Figs. 15 and 16.) When all of the staves have been adjusted, the heads M M' are put in motion by shifting onto the pulley a the clutch u, which has occupied a central position between the two pulleys a a'. The screw-shafts N are turned so as to force the heads M M' toward each other, the fingers s acting on the hoops which have been deposited on the cones K, and forcing said hoops from the cones and onto the barrel, the staves of which are thus compressed around the heads, so as to firmly retain the same. The clutch u is then thrown into gear with the wheel a', and the movement of the screw-shafts N is thereby reversed, so as to retract the heads M M' and their fingers s, the clutch being then restored to the intermediate position, so as to throw the screw-shafts N out of gear. Pressure upon the treadle X then causes the retraction of the shafts I through the medium of the devices described, and this causes the withdrawal of the disks J J' and the lower halves of the cones K, so as to release the barrel, which falls from the machine onto the floor or into a suitable receptacle. The operation is completed by depressing the lever Z, so as to release the screw-sleeves from the control of

the block U and wheels V V', and thus permit the disks J J' and the lower halves of the cones K to be forced by the springs i back to their original position prior to a repetition of the above-described operations.

Instead of being used for making the barrel complete, as described, the machine may, if desired, be employed for setting up the body only of the barrel, the frame G and the mechanism carried thereby being dispensed with or thrown out of use in this event, and in some cases the disks J J' may be rotated slowly but continuously instead of having the intermittent movement described imparted to them, the latter method of operation, however, being preferred.

We claim as our invention—

1. The combination, in a barrel-forming machine, of a stave-feeding device, opposite disks constructed to receive and support upon their peripheries the ends of the staves, mechanism for rotating said disks, and the flanges 26, surrounding but independent of the disks, and notched for the passage of the staves, said flanges projecting over the ends of the staves, whereby they serve to retain said staves in place on the peripheries of the disks as the latter are rotated, all substantially as set forth.

2. The combination, in a barrel-forming machine, of a stave-feeding device, opposite disks constructed to receive and support upon their peripheries the ends of the staves, mechanism for rotating the disks, the flanges 26, surrounding but independent of the disks and notched for the passage of the staves from the feeder, said flanges projecting over the ends of the staves, so as to retain the same upon the peripheries of the disks, the opposite hoop-holders and fingers for forcing the hoops from said holders and onto the barrel while the ends of the staves are within the flanges 26, as set forth.

3. The combination, in a barrel-forming machine, of the stave-feeding device, the opposite disks, J J', constructed to receive and support upon their peripheries the ends of the staves, and having on said peripheries projecting pins a², forming stave-sockets, mechanism for rotating said disks, and the retaining-flanges 26, surrounding but independent of the disks and notched for the passage of the staves, said flanges projecting over the ends of the staves and serving to retain them upon the peripheries of the disks as the latter are rotated, as set forth.

4. The combination, in a barrel-making machine, of a stave-feeding device, opposite disks constructed for the reception and support of the ends of the staves, and having their faces provided with means for retaining the heads of the barrel, mechanism for rotating said disks, the flanges 26, extending completely around the disks, and notched for the passage of the staves, and projecting over the ends of the same, so as to serve as a retainer, opposite hoop-holders, and the hoop-driving fingers, as set forth.

5. The combination of the disks J J' and